Urban land use impacts local climate in numerous ways that have the potential to be harmful to human health and the environment. This includes the urban heat island effect, an abundance of impervious surfaces, and changes in wind flow patterns. Effective land classification systems are a necessary component of research concerning land use and climate. However, several methods used for classification rely upon vague definitions and/or are not easily applicable to a variety of cities, especially those in developing nations.The World Urban Database and Access Portal Tools project (WUDAPT) recognized such issues and proposed the Local Climate Zone (LCZ) classification system as a standardized method for urban land use classification. The LCZ system has a resolution of 120 meters and contains seventeen local climate zone classifications (ten of which are Urban Climate Zones (UCZ)), defined by quantitative and qualitative factors regarding urban form and function. In this study, an LCZ map was created for Spokane, WA and the surrounding communities using the method outlined by WUDAPT. The 2011 National Land Cover Database (NLCD) is an established land classification system in the United States with a resolution of 30m. Comparison of LCZ and NLCD maps revealed that both methods produce a similar urban footprint when low, medium, and high density classes are all combined together. However, there are significant differences in the specific classification of land within the urban area, potentially a result of differences in the source imagery between the methods (LCZ imagery is based on year 2017 and NLCD is based on year 2011). Finally, the UCZ data combined with the MODIS data and 2011 NLCD data were used for high-resolution urban atmospheric modeling based on the WRF model. The results produced by both datasets were compared to observations and the accuracy of the LCZ data was assessed.